


Notice of Allowability	Application No.	Applicant(s)	
	09/919,479	VAUGHAN ET AL.	
	Examiner	Art Unit	
	Dixomara Vargas	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Response filed 01/30/04.
2. ☒ The allowed claim(s) is/are 1-66.
3. ☒ The drawings filed on 03 March 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

<ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date <u>01/30/04</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material 	<ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____.
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DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David Black on April 20, 2004.

The application has been amended as follows in order to positively claim the type of field being generated, i.e. magnetic resonance:

Replace claim 1 with the following:

1. An apparatus comprising: a volume coil including a plurality of current elements, the volume coil for magnetic resonance having an aperture formed by removal or displacement of one or more current elements from a regular or symmetric pattern or arrangement of current elements wherein each current element includes a transmission line segment having a first current path and a parallel return current path for the first current path, wherein, for each current element of the plurality of current elements the first current path is resonant with the parallel current return path.

Replace claim 2 with the following:

Art Unit: 2859

2. An apparatus comprising: a radio frequency magnetic field unit for magnetic resonance including a plurality of current elements that are asymmetrically arranged, wherein at least one current element includes a transmission line segment having a first current path and a parallel return current path for the first current path and at least one current element is physically disconnected from another current element and at least two current elements are reactively coupled.

Replace claim 9 with the following:

9. An apparatus comprising: a radio frequency magnetic field unit for magnetic resonance having a plurality of current elements wherein each current element includes a transmission line segment having a first current path and a parallel return current path for the first current path, the radio frequency magnetic field unit adapted to generate a desired magnetic field, the radio frequency magnetic field unit having a first aperture formed at an end of the radio frequency magnetic field unit and a second aperture that is substantially unobstructed, wherein the first aperture is contiguous to the second aperture.

Replace claim 12 with the following:

12. An apparatus comprising: a radio frequency magnetic field unit for magnetic resonance having a plurality of current elements wherein each current element includes a transmission line segment having a first current path and a parallel return current path for the first current path, the radio frequency magnetic field unit having a first side aperture, a second side aperture and a pair of end apertures, the first side aperture and the second side aperture contiguous with each of the pair of end apertures.

Art Unit: 2859

Replace claim 16 with the following:

16. A method comprising: removing one current element of a plurality of current elements from a first radio frequency magnetic field unit to form a second radio frequency magnetic field unit for magnetic resonance having an aperture, wherein each current element includes a transmission line segment having a first current path and a parallel return current path for the first current path.

Replace claim 18 with the following:

18. A method comprising: removing two or more adjacent current elements of a plurality of current elements from a first radio frequency magnetic field unit to form a second radio magnetic field unit for magnetic resonance and having an aperture, wherein each current element includes a transmission line segment having a first current path and a parallel return current path for the first current path.

Replace claim 20 with the following:

20. A method comprising: removing two oppositely positioned current elements circuits from a first radio frequency magnetic field unit to form a second radio frequency magnetic field unit for magnetic resonance and having a first aperture and a second aperture wherein each current element circuit includes a transmission line element having a first current path and a parallel return current path for the first current path.

Replace claim 60 with the following:

60. A transverse electromagnetic coil cavity including current elements, the transverse electromagnetic coil for magnetic resonance and having windows or apertures cut between current elements to allow access through the current elements wherein each current element includes a transmission line segment having a first current path and a parallel return current path for the first current path.

Allowable Subject Matter

2. Claims 1-66 are allowed.
3. The following is an examiner's statement of reasons for allowance:
 - a. With respect to claim 1, the claim has been found allowable over the prior art because the prior art fails to teach or fairly suggest an apparatus comprising: an aperture formed by removal or displacement of at least one current element wherein the current elements includes transmission line segments with a current path and a parallel return current paths in combination with the remaining limitations of the claim.
 - b. With respect to claim 2, the claim has been found allowable over the prior art because the prior art fails to teach or fairly suggest an apparatus comprising: a transmission line segment having a first current path and a parallel return current path for the first current path and at least one current element is physically

disconnected from another current element in combination with the remaining limitations of the claim.

c. With respect to claim 9, the claim has been found allowable over the prior art because the prior art fails to teach or fairly suggest an apparatus comprising: a transmission line segment having a first current path and a parallel return current path for the first current path, and a first aperture contiguous to the second aperture in combination with the remaining limitations of the claim.

d. With respect to claim 12, the claim has been found allowable over the prior art because the prior art fails to teach or fairly suggest an apparatus comprising: a transmission line segment having a first current path and a parallel return current path for the first current path, a first side aperture and the second side aperture contiguous with each of the pair of end apertures in combination with the remaining limitations of the claim.

e. With respect to claim 16, the claim has been found allowable over the prior art because the prior art fails to teach or fairly suggest a method comprising: removing one current element of a plurality of current elements forming an aperture, wherein each current element includes a transmission line segment having a first current path and a parallel return current path for the first current path in combination with the remaining limitations of the claim.

f. With respect to claim 16, the claim has been found allowable over the prior art because the prior art fails to teach or fairly suggest a method comprising: removing two or more adjacent current elements of a plurality of current elements from a radio frequency magnetic field unit forming an aperture, wherein each

current element includes a transmission line segment having a first current path and a parallel return current path for the first current path in combination with the remaining limitations of the claim.

g. With respect to claim 20, the claim has been found allowable over the prior art because the prior art fails to teach or fairly suggest a method comprising: removing two oppositely positioned current elements circuits from a first radio frequency magnetic field unit to form a first aperture and a second aperture wherein each current element circuit includes a transmission line element having a first current path and a parallel return current path for the first current path in combination with the remaining limitations of the claim.

h. With respect to claim 60, the claim has been found allowable over the prior art because the prior art fails to teach or fairly suggest a transverse electromagnetic coil cavity including: windows or apertures cut between current elements wherein each current element includes a transmission line segment having a first current path and a parallel return current path for the first current path in combination with the remaining limitations of the claim.

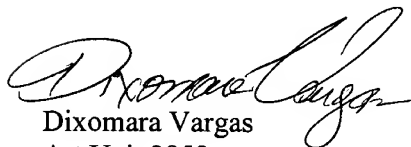
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252. The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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April 26, 2004



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